

Notice of Allowability

Application No.

09/556,897

Examiner

Elizabeth Quan

Applicant(s)

ROACH ET AL.

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to telecommunication held 3/1/2004.
2. ☒ The allowed claim(s) is/are 1-9, 11-15 and 31-42.
3. ☒ The drawings filed on 20 April 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>03032004</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

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EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with David Schneck on 3/1/2004.

The application has been amended as follows:

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1. (currently amended) A robotic instrument for microchannel chemical analysis of samples in microchannels on a microchip substrate, the substrate having a plurality of microchannels therein with inlet ports in fluid communication with the microchannels, the instrument comprising:

a first frame,

a first track having the first frame movably mounted thereon,

a second frame for holding a microtiter plate, said plate having a plurality of spaced apart wells whose positions are known,

a second track having the second frame movably mounted thereon,

a gantry spanning the first and second tracks at an elevation above the tracks, the gantry carrying a multifunctional device including a plurality of ganged pipettors and a vacuum line, the multifunctional device being horizontally movable on the gantry and vertically movable from the gantry towards and away from the first track and the second track such that said multifunctional device may be aligned to transfer liquid from a plurality of wells on the plate to a plurality of inlet ports on the substrate, and

a plurality of motors arranged to provide motive power to the multifunctional device, the first frame, and the second frame; and

a substrate gripper movable to the first frame from other locations.

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2. (currently amended) The apparatus of claim 1 further ~~defined by a substrate gripper movable to the first frame from other locations, the gripper having~~ including a motor controlling vertical and horizontal motion of the gripper.

3. (previously presented) The robotic instrument of claim 1 further comprising a plurality of electrode wires mounted on a platform above the first track that are insertable into inlet ports of the substrate.

4. (original) The robotic instrument of claim 3 further comprising a circuit board mounted to said platform wherein said electrode wires extend perpendicularly from said circuit board of said platform.

5. (original) The robotic instrument of claim 4 wherein said circuit board has:

- a first electrode terminal in electrical communication with a first wire trace and sample terminals of said microchip substrate,

- a second electrode terminal in electrical communication with a second wire trace and cathode terminals of said microchip substrate,

- a third electrode terminal in electrical communication with a third wire trace and waste terminals of said microchip substrate, and

- a fourth electrode terminal in electrical communication with a fourth wire trace and an anode terminal of said microchip substrate.

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6. (original) The apparatus of claim 5 further comprising a fifth electrode terminal in electrical communication with a fifth wire trace and a second set of sample terminals of said microchip substrate.

7. (original) The robotic instrument of claim 1 further comprising a detector located on a platform above the first track.

8. (original) The robotic instrument of claim 7 wherein said detector includes a scanning confocal laser microscope.

9. (original) The robotic instrument of claim 1 further comprising a platform above the first track, said platform having a detector and a plurality of wires located on it.

10. (canceled)

11. (currently amended) The robotic instrument of claim 1 ~~[[10]]~~ wherein said plurality of pipettors have a spacing between each pipettor that matches the spacing between each of the wells of said spaced apart wells.

12. (currently amended) The robotic instrument of claim 1 ~~[[10]]~~ further comprising a tip guide wherein said plurality of pipettors have tips that are inserted through said tip guide.

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13. (currently amended) The robotic instrument of claim 1
[[10]] further comprising a pipettor assembly actuator.

14. (original) The apparatus of claim 3 further comprising an
electrode wire wash station on said first frame.

15. (original) The apparatus of claim 1 further comprising
optical and mechanical position sensors located on said first
and second frames.

16-30. (canceled)

31. (new) A robotic instrument for microchannel chemical
analysis of samples in microchannels on a microchip substrate,
the substrate having a plurality of microchannels therein with
inlet ports in fluid communication with the microchannels, the
instrument comprising:

a first frame,

a first track having the first frame movably mounted
thereon,

a second frame for holding a microtiter plate, said
plate having a plurality of spaced apart wells whose positions
are known,

a second track having the second frame movably
mounted thereon,

a gantry spanning the first and second tracks at an
elevation above the tracks, the gantry carrying a
multifunctional device including a plurality of ganged
pipettors and a vacuum line, the multifunctional device being
horizontally movable on the gantry and vertically movable from
the gantry towards and away from the first track and the

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second track such that said multifunctional device may be aligned to transfer liquid from a plurality of wells on the plate to a plurality of inlet ports on the substrate,

a plurality of motors arranged to provide motive power to the multifunctional device, the first frame, and the second frame; and

a plurality of electrode wires mounted on a platform above the first track that are insertable into inlet ports on the substrate.

32. (new) The apparatus of claim 31 further defined by a substrate gripper movable to the first frame from other locations, the gripper having a motor controlling vertical and horizontal motion.

33. (new) The robotic instrument of claim 32 further comprising a circuit board mounted to said platform wherein said electrode wires extend perpendicularly from said circuit board of said platform.

34. (new) The robotic instrument of claim 33 wherein said circuit board has:

a first electrode terminal in electrical communication with a first wire trace and sample terminals of said microchip substrate,

a second electrode terminal in electrical communication with a second wire trace and cathode terminals of said microchip substrate,

a third electrode terminal in electrical communication with a third wire trace and waste terminals of said microchip substrate, and

a fourth electrode terminal in electrical communication with a fourth wire trace and an anode terminal of said microchip substrate.

35. (new) The apparatus of claim 34 further comprising a fifth electrode terminal in electrical communication with a fifth wire trace and a second set of sample terminals of said microchip substrate.

36. (new) The robotic instrument of claim 31 further comprising a detector located on said platform above the first track.

37. (new) The robotic instrument of claim 36 wherein said detector includes a scanning confocal laser microscope.

38. (new) The robotic instrument of claim 31 wherein said plurality of pipettors have a spacing between each pipettor that matches the spacing between each of the wells of said spaced apart wells.

39. (new) The robotic instrument of claim 31 further comprising a tip guide wherein said plurality of pipettors have tips that are inserted through said tip guide.

40. (new) The robotic instrument of claim 31 further comprising a pipettor assembly actuator.

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41. (new) The apparatus of claim 31 further comprising an electrode wire wash station on said first frame.

42. (new) The apparatus of claim 31 further comprising optical and mechanical position sensors located on said first and second frames.

2. The following is an examiner's statement of reasons for allowance: The prior art of record does not teach or fairly suggest the combination of limitations, including a substrate gripper movable to the first frame from other locations or a plurality of electrode wires mounted on a platform above the first track that are insertable into inlet ports on the substrate.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Quan whose telephone number is (571) 272-1261. The examiner can normally be reached on M-F (8:00-4:30).

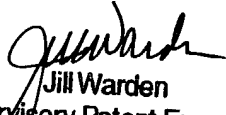
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elizabeth Quan
Examiner
Art Unit 1743

eq


Jill Warden
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